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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/702,043

11/06/2003

Hideki Hashizume

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12/15/2005

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EXAMINER

CHIEM, DINH D

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/702,043

Applicant(s)

HASHIZUME ET AL.

Examiner

Erin D. Chiem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-9 and 12-15 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3, 5-9, and 12-15 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/12/09
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the amendment filed on September 30, 2005. The objection to claim 12 is withdrawn in view of the amendment. Currently claims 1-3, 5-9, and 12-15 are pending and claims 16-20 are canceled.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-7, 11-12, and 15 rejected under 35 U.S.C. 102(b) as being anticipated by Li et al. (US Patent 6,084,994). Li teaches in Figures 2, 5, and 6 a wavelength selective optical device comprising a first optical fiber 102 in which optical signals with a plurality of multiplexed wavelengths is propagated; a first graded index rod lens 120 having a first end surface thereof on which a light emitted from an end surface of the first optical fiber is incident, and a second end surface thereof from which a parallel light beam is emitted; an optical filter 130 arranged to face to the second end of the surface of the first graded index rod lens so that the parallel light beam emitted from the first graded index rod lens is incident on the optical filter; a second graded index rod lens 140 having a first end surface thereof facing to the first optical fiber; and a second optical fiber 160 arranged on a side of a second end surface of the second graded index rod lens, wherein the refractive index distribution constant of the rod lens is adjusted such that a

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wavelength range of the light transmitted from the optical filter is tuned within a desired range (col. 4, lines 57-59). The Examiner, respectfully, point out that the shift of refractive index distribution constant to the desired range is the purpose of employing an optical filter such as one taught by Li.

Regarding claims 5, 11, and 15 the selection of one from a plurality of graded index rod lens groups having various different refractive index distribution constants is a mere fact of one of ordinary skill in the art when embarking on selecting the correct lens to use, the limitation is comparable to one of ordinary skill in the art to open a catalog of optical lens having various refractive index distribution constants to select from.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, 8-9, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Cearns et al. (US Patent 5,943,149).

Li teaches in Figures 2, 5, and 6 a wavelength selective optical device comprising a first optical fiber 102 in which optical signals with a plurality of multiplexed wavelengths is propagated; a first graded index rod lens 120 having a first end surface thereof on which a light emitted from an end surface of the first optical fiber is incident, and a second end surface thereof from which a parallel light beam is emitted; an optical filter 130 formed directly on to the second

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end of the surface of the first graded index rod lens so that the parallel light beam emitted from the first graded index rod lens is incident on the optical filter; a second graded index rod lens 140 having a first end surface thereof facing to the first optical fiber; and a second optical fiber 160 arranged on a side of a second end surface of the second graded index rod lens, wherein the refractive index distribution constant of the rod lens is adjusted such that a wavelength range of the light transmitted from the optical filter is tuned within a desired range (col. 4, lines 57-59).

However Li does not explicitly teach the optical filter is a multi-layered optical filter.

Cearns teaches a wavelength selective optical device comprising a lens 310 and directly in contact with a multilayer dielectric filter 305 and the multilayer dielectric filter is in direct contact with another lens 310 for the purpose of easy manufacturing and allows the optical arrangement to occupy less space.

Since Li and Cearns are both from the same field of endeavor, the purpose disclosed by Cearns would have been recognized in the pertinent art of Li.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ multi-layered optical filter versus a separately independent filter such as a crystal, by directly apply the multi-layered optical filter onto the second end surface of the rod lens, similar to the optical filter directly contacted to the rod lens taught by Li.

The motivation for employing multi-layered optical filter is for the purpose of easy manufacturing and allows the optical arrangement to occupy less space.

Response to Arguments

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Applicant's arguments filed on September 30, 2005 have been fully considered but they are not persuasive. Applicant's argument centralized on three points:

1. Li alone or in combination with Cearn's does not teach the "essential..refractive index distribution constant $A^{1/2}$,"
2. The Examiner's statement of a "shift of refractive index distribution constant" taught by Li is erroneous.
3. Li alone or in combination with Cearn's does not teach "selecting refractive index distribution of the GRIN lens to provide wavelength tuning."

The Examiner's response is as followed:

1. Claim 1 recites:

A wavelength selective optical device comprising:
a first graded index rod lens having a first end surface thereof on which a divergent light is incident, and a second end surface thereof from which a parallel light beam is emitted; and
an optical filter arranged to face to the second end surface of the first graded index rod lens so that the parallel light beam emitted from the first graded index rod lens is incident on the optical filter;
wherein a refractive index distribution contrast of the first graded index rod lens is adjusted such that a wavelength range of the light which is reflected or transmitted by the optical filter which is tuned within the desired range.

The claim does not mention the "essential...constant $A^{1/2}$ " that the Applicant is arguing. The closest mentioning of this "constant" is "a refractive index distribution contrast" (third paragraph of claim 1). Thus, Applicant's argument raised two new issues.

- (a.) Does there exist a typo in the claim? Should the word "contrast" be "constant"?

(b.) Is there a lack of enablement of claim [MPEP form paragraph 7.33.01]? If the constant is so essential then why is it not claimed? Hypothetically, the claim contains a typo as in situation (a.) and the claim does intend to recite “a refractive index distribution constant.” Under the assumption of the hypothetical circumstance (a.) to be true, Li teaches such constant because in the third paragraph Applicant recites “a refractive index distribution constant of the first graded index rod lens is adjusted such that a wavelength range of the light which is reflected or transmitted by the optical filter which is tuned within the desired range.” One of ordinary skill in the art would tune the refractive index distribution constant within a desired range; certainly one of ordinary skill would not build an optical component that is not tuned within a desired range. The Examiner would like to emphasize that the recitation of “tuned...within a desired range” may be broadly read upon as any range that would allow Li’s wavelength selective optical device to function would read upon applicant’s limitation.

Regarding the statement that Li does not teach or suggest that the refractive index distribution can be adjusted to provide wavelength tuning, the Examiner respectfully points out that applicant’s claimed invention that the refractive index distribution can be adjusted to provide wavelength tuning is a design step prior to manufacturing and applicant’s claimed invention does not enable an end-user means to adjust the refractive index distribution.

In response to applicant's argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant

relies (i.e., $A^{1/2}$) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

2. Regarding the argument that the shift of refractive index distribution constant being erroneous is irrelevant since the “shift” was never claimed.
3. Regarding the rebuttal of the rejection of claims 5, 11, and 15; these claims substantially recites *—wherein the first graded index rod lens is selected from among a plurality of graded index rod lens groups having various different refractive index distribution constants—*this recitation can be interpreted as a selection process of which type of lens to be used in the wavelength selective optical device. In such interpretation, the Examiner merely pointed out a routine process to one of ordinary skill in the art that the selection process may involve an optical lens catalog and the design requirements for the device. The recitation “a plurality of graded index rod lens groups” does not recite a structural limitation, but merely an arbitrary group of rod lens; thus it is reasonable to interpret that the selection may be chosen from a catalog of optical lens that one of ordinary skill in the art may choose to purchase from. Regarding the argument that “the refractive index distribution constant will affect the wavelength selectivity of a filter receiving light from the GRIN lens” is a spurious argument since the limitation is not claimed. Regarding the argument that Cearn's does not teach a refractive index

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distribution adjusted to provide wavelength selectivity in a desired range is also irrelevant since the incorporation of Cearn's reference is to obviate a multi-layered optical filter.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

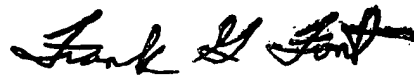
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
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A handwritten signature in black ink, appearing to read "Frank G. Font". The signature is stylized with a large, looped "F" and a cursive "Font".

Frank G. Font
Supervisory Primary Examiner
Technology Center 2800